Course Outline and Reading List

This course is a one semester upper-level elective designed for undergraduates and masters students. This course studies dynamic models of optimizing agents who face risky returns and uncertain government policies. We will study theories of economic growth; theories of optimal consumption and saving; Social Security reform; theories of optimal monetary and fiscal policy; search theory and other applications of dynamic programming.

The learning goals for this course are:

1. learn how to use time series analysis to summarize basic facts about the macroeconomy.
2. learn contemporary theories of growth, consumption/saving, unemployment, and fiscal policy.
3. learn how to solve dynamic optimization models via dynamic programming.

In general, you will learn how to use rigorous, mathematical models to appraise critically the issues underlying important contemporary policy debates in the United States and elsewhere.

The three semesters of core intermediate economics sequence (Economics 80a, 82b, and 83b) are prerequisites for this course. It is assumed that students are comfortable with calculus. The computer program, Matlab, will also be used throughout the semester.

Lectures will be given on Tuesdays and Thursdays from 5:00 to 6:20 PM. All lectures will be given in Lemberg Academic Center 054.

The primary reference for the course are the on-line notes available from http://people.brandeis.edu/~ghall/Econ182a/build/html/

In addition to these notes, the references for the course are


These texts are available from the Brandeis University Bookstore and most on-line booksellers. These texts are oriented toward models and methods for solving and analyzing them, and this course will share this emphasis. Students may also wish to have on their bookshelf a good undergraduate intermediate macroeconomics text.
My contact information is:

George Hall
ghall@brandeis.edu
Lemberg Academic Center, Room 164
736-2242
Office Hours: Wednesdays 3-5.

Siqi Liu will be the teaching fellow for this course. Siqi will grade problems sets and be available to answer questions. His e-mail address is sliu2@brandeis.edu.

The home page for this course is available through LATTE. Announcements, problem sets, computer programs, and additional handouts will be posted on this page. You are encouraged to check the web page regularly.

There will be an in-class 80-minute mid-term examination on Thursday, March 8, and a three-hour final examination. The final examination at a time and place scheduled by the Registrar. An early final will NOT be given. All exams will be closed book.

There will be regular written assignments in the course. These problem sets are required. Problem sets are “batting practice” for the examinations; students can expect that some questions on the examinations will be quite similar to those previously seen on problem sets.

While you are encouraged to discuss the problems with others, you are expected to answer problems on your own. Resist the temptation to copy someone else’s answer. This is worse than useless as it is not only a violation of Brandeis University rules but also will lull you into a false sense that you understand the material.

More generally, you are expected to be honest in all of your academic work. Please consult Brandeis University Rights and Responsibilities for all policies and procedures related to academic integrity. Students may be required to submit work to TurnItIn.com software to verify originality. Allegations of alleged academic dishonesty will be forwarded to the Director of Academic Integrity. Sanctions for academic dishonesty can include failing grades and/or suspension from the university. Citation and research assistance can be found at LTS.

Success in this four-credit course is based on the expectation that students will spend a minimum of 9 hours of study time per week in preparation for class (readings, solving problems, discussion sections, preparation for exams, research, etc.).

Letter grades in the course will be determined by the instructors. The weights are: 30% for the mid-term examination; 50% for the final examination; 20% for assignments.

If you are a student with a documented disability on record at Brandeis University and wish to have a reasonable accommodation made for you in this class, please see Mr. Hall immediately.
Reading List

This is a forecast rather than a plan; we’ll update as we go along.

1. Macroeconomic Facts, an Overview, and Important Tool I: Time Series Analysis
   (a) stochastic linear difference equations
   (b) Markov chains

2. Economic Growth
   (a) Facts
      • Acemoglu, chapter 1
   (b) A Malthusian Model
   (c) The Solow Growth Model
      • Acemoglu, chapter 2
   (d) Sources of Growth
      i. Technological Progress
         • Acemoglu, section 2.7
      ii. Human Capital
         • Acemoglu, sections 3.2 - 3.4
      iii. “Fundamental” Causes (e.g. Institutions)
         • Acemoglu, chapter 4
   (e) Growth and Inequality
3. Inter-temporal Choice/Consumption and Saving

(a) The Two-Period Consumption-Saving Model

(b) Important Tool II: Dynamic Programming
   • Adda and Cooper, chapters 2 and 3.
   • Acemolgu, sections 5.1, 5.3, chapters 6, 16

(c) The Infinite-Horizon Model
   • Adda and Cooper, chapter 6.
   • Acemolgu, section 17.1.

(d) The Life Cycle Model

(e) Behavioral Theories

(f) Empirical Evidence
4. Investment
   • Adda and Cooper, chapter 8.

5. The Labor Market Without and With Unemployment
   (a) Without Unemployment
   (b) Unemployment with Search
      • Adda and Cooper, chapter 10.6.

   • Adda and Cooper, chapter 5.

7. Government Expenditures, Revenues, Deficits, and Debt
   (a) The Government Budget Constraint
   (b) Ricardian Equivalence
   (c) Tax Smoothing: Gallatin-Barro
   (d) Supply-Side Economics
   (e) The Overlapping Generations Model and Social Security
      • Acemoglu, chapter 9
   (f) Current Fiscal Issues
   (g) Unpleasant Monetarist Arithmetic